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Descriptions of New Species of DIURNAL LEPIDOPTERA found in North America.

BY W. H. EDWARDS.

***Argynnis Rhodepe*, n. sp.**

Primaries of median width, moderately arched, straight on hind margin.

Male.—Expands 2.2 inches. Upper side deep red fulvous, the basal portion of both wings up to the mesial band dark brown; hind margins bordered by two heavy parallel black lines, which enclose fulvous spaces between the nervules; on primaries these lines are frequently confluent, then forming a broad band; the submarginal black spots lunular, confluent, resting on the marginal lines throughout and enclosing sub-ovate fulvous spots; the other markings on primaries as in allied species, but heavy, very much as in *A. Monticola*; secondaries have submarginal black spots equal in size to those on primaries; the mesial band narrow, confluent; the black discal spot oval, with a narrow, deep, fulvous sinus; beyond to base the ground is black in the cell and for some distance on either side of cell, covered by partially brown scales, and on this, next anterior to the mesial band, in the upper discoidal interspace, is a long fulvous spot, and on the sub-costal interspace a second, smaller; fringes alternately luteous and black, the black prevailing on primaries.

Under side of primaries deep red along the whole hind margin quite up to the line of rounded spots; sometimes the basal portion up to the mesial band is of same hue, but in other cases it is paler; the sub-costal and discoidal interspaces as far as the red marginal space being yellow, as is also the posterior part of cell; the sub-marginal black spots diffuse, the lower ones produced nearly to the rounded spots; the enclosed spots small, triangular, rather lunular next inner angle, and the upper five or six either yellow with a few silver scales, or well silvered; on costal margin three sub-apical spots, either yellow or silvered.

Secondaries uniform deep red from base to margin, except that sometimes there is a narrow pale space between the two outer rows of spots, as of a yellow sub-color, washed with red; in some cases the middle of the wing, next anterior to the second row of spots, is much covered with black; the marginal spots well silvered, narrow, elongate, lunular posteriorly, the others sub-ovate; the spots of the second row are nearly equal in size, excepting the fourth, which is minute; the first three, the fifth and sixth, sub-quadrate, the seventh a paral-

lelogram, the eighth, on the margin, nearly or quite obsolete; all heavily edged above with black; these spots either well silvered or yellow-white sprinkled with scales of silver; in the third row are five similar spots, the first, fourth and fifth nearly equal, lunate, the second a point, sometimes wanting, the third sub-triangular edged posteriorly by black; all heavily edged above with same color; in the cell a small rounded spot, and at the base of median nervure an oval, both ringed with black; patches of silver at base of cell, at origin of sub-costal, and on shoulder; abdominal margin very lightly silvered; body above black covered with brown-fulvous hairs; beneath light fulvous, abdomen buff; legs fulvous; palpi fulvous, buff at base, at the sides black hairs; antennæ fuscous above, ferruginous below; club black, ferruginous at tip.

Female.—Expands 2.4 inches. Upper side of a pale fulvous, obscure at base; markings similar to male but the sub-marginal fulvous spots paler than the ground color; under side as in the male.

From 3 ♂, 1 ♀, taken in British Columbia, in 1873, by G. R. Crotch, Esq.

Satyrus Phocus, n. sp.

Male.—Expands 1.6 to 1.8 inch. Upper side uniform brown, of medium color; primaries have one small black ocellus in upper discoidal interspace, sometimes in a narrow yellowish ring, and with a white central dot, but in most cases this last is wanting, and the ring represented by a pale shade of brown, and sometimes is altogether wanting; occasionally there is a second ocellus, smaller than the other in lower median interspace, black without pupil.

Under side of primaries much the same shade as above, sometimes tinted with yellow; of secondaries rather darker brown than above, especially over the basal half of the wing; hind margin preceded by a dark common line often obsolete; both wings reticulated with fine, abbreviated, darker brown lines and streaks; the ocelli on primaries repeated, enlarged, with small white pupils and well defined yellow irides; secondaries have two minute black spots, scarcely more than points, one in upper discoidal, the other in lower median interspace, each with white dot; traces of such a spot are sometimes seen in sub-median interspace.

Body con-colored; legs yellowish; palpi fuscous; antennæ fuscous above, cretaceous below; club fuscous, ferruginous at tip.

Female —Unknown.

From several males taken at Lake Labache, British Columbia, by G. R. Crotch, Esq., in 1873.

This species is of the size of small *Nephele*, and is plainer colored and with fewer spots. In same vicinity were taken specimens of *S. Boopis*, Behr. Also of *Colias Philodice*, and *Argynnis Aphrodite*, neither of which have been known by me hitherto from the Northwest coast. Also one specimen of *Vanessa J album*, and three females of a *Colias*, probably *Scudderii*, Reakirt; specimens of *Arg. Chariclea*, or *Boisduvalli*, considered by some to be a dark var. of *Chariclea*. On Bald Mountain near Lake Labache were taken diminutive specimens of *Argynnis Bischoffii*, Edw., hitherto reported only from Kodiak. Near Lake Labache also were taken *Arg. Bremneri*, Edw., as well as at Victoria, Vancouver's Island. On this Island a fine specimen of *Chionobas Gigas*, Butler, was taken, and specimens of *Colias Interior*, Scudder. Among the *Pieridæ*, taken by Mr. Crotch, were *Pallida*, Scudder (Syn. *Cartoria*, Reakirt), and *Venosa*, Scudder, probably syn. with *Yreka*, Reakirt. Also *Oleracea*; all these from Lake Labache.

***Argynnis Nitocris*, n. sp.**

Male.—Expands 3 inches. Upper side bright fulvous, much obscured by brown from base to middle of disk, except upon a portion of cell of primaries; both wings edged by two parallel, fine, black lines, which on secondaries enclose a rather broad fulvous space, on primaries a narrower space, divided by the black nervules; anterior to these lines on primaries a series of black lanceolate spots, the three or four next apex connected and resting upon the inner line, the others separated and not touching the line; on secondaries a series of lunular separated spots; the rounded extra-discal spots as in *Nokomis*; small on secondaries, rather large on primaries; the markings on disk and to base as in *Nokomis*, heavy on primaries, light on secondaries, the discal band on the latter broken into small, separate lunules; the spot on the arc like the letter S; fringe of secondaries light fulvous, of primaries deep fulvous, black at tips of nervules.

Under sider of primaries cinnamon-red from base to hind margin and over entire wing except a small sub-apical space across the sub-costal nervules, which is bright ochraceous-yellow, and a brown patch just anterior to this on costal margin; the black markings repeated; the five lanceolate spots next apex enclosing silver lunules; three silver spots on the brown costal patch, one of them minute.

Secondaries deep ferruginous from base to outer edge of the second row of spots; between this and the outer row, a clear space, as in *Cybele*, bright ochraceous-yellow; the seven sub-marginal spots narrow segments of circles, edged above with ferruginous; the second row seven, rather small, the 1st, 2d and 6th equal, sub-rotund; the 3d and 5th long oval; the 4th minute and 7th sub-lunate; all heavily edged above with black; the third row of three large spots, the 1st and 3d sub-lunate, the 2d rounded; edged above with black; in cell a round spot, and below cell an oval, both ringed with black; all these spots well silvered; a silver patch at base of cell, and another at base of sub-costal; shoulder and abdominal margin lightly silvered.

Body above fulvous, beneath fulvous with buff and gray hairs; legs fulvous; palpi fulvous, buff at sides; antennæ fuscous above, fulvous below; club black, tip fulvous.

Female.—Unknown.

From one male taken at White Mountains, Arizona, by Lieut. Henshaw of the exploring Expedition under Lieutenant Wheeler, August, 1873.

***Melitæa Acastus*, n. sp.**

Male.—Expands 1.5 in. Size and form of *M. Palla*; paler fulvous; the spots and bands closely like that species, and on a fuscous ground; fringes similar also.

Under side of primaries pale fulvous, reddish next base and across the disk next the submarginal spots, yellow fulvous at extremity of and below cell, and along the origin of the nervules; a fuscous patch on middle of inner margin, and four fuscous, rounded spots forming a bent oblique line reaching from costal edge to median nervule; hind margin edged by a narrow fulvous band, slightly wavy on inner edge; submarginal spots large, lanceolate, yellow-white, the three next inner angles suffused with fulvous; the three sub-apical spots yellow-white on fuscous ground; costal edge yellow-white.

Secondaries nearly covered with large yellow-white spots, in bands, separated by fuscous lines; the marginal edge bordered as in primaries; the submarginal spots lunular, the spots of second row small, sub-rectangular, and each except the two outer having a minute orange spot near its posterior edge, sometimes represented by a few scales only; the spots of the 3d, or discal row, long, conforming to the interspaces, almost a continuous band, the nervules that divide them

being but partially fuscous; the anterior portion of these spots, on both margins, cut off by an irregular black line; the 4th row is basal and is separated from the 3d by a broad space, and consists of four irregular, confluent spots; the outer edges of the band thus formed edged with black; the 4th spot confluent with the con-colored abdominal margin; in cell an orange bar on either side the triangular spot; a similar bar in the interspace above cell, and an orange lunule in submedian interspace next submedian nervure, and a small orange triangle at origin of lower branch of median; an orange bar also next the basal side of the 4th band. Body above black with fulvous hairs; rings of abdomen edged with yellow; below, thorax and abdomen, yellow-white; legs pale fulvous; palpi same above, yellow-white in front; antennæ fuscous, with narrow white rings, below orange cretaceous next base; club fuscous, orange below and at tip.

Female.—Expands 1.9 inch. Color of upper side sometimes like male, sometimes paler; in some individuals the submarginal spots and the third, or discal row, are paler than the rest of the wing; and the three outer rows on primaries likewise paler; under side similar in color and markings to male.

From Montana, Nevada and Southern Utah. Specimens have been received from Dr. Hayden's Expeditions and Lieut. Wheeler's of 1872. Also from Henry Edwards, Esq. This species is at once distinguished from its allies by the yellow-white under surface, especially of secondaries, this color nearly occupying the whole wing.

Synchlœ Crocale, n. sp.

Male.—Expands 1.7 to 1.9 inch. Upper side brownish-black, spotted with white; primaries have a sub-marginal row of points, sometimes complete from apex to lower branch of median, but usually in part obsolete, the two spots on first and second median interspaces only appearing; a sinuous extra-discal row of points or small spots across the entire wing, seven in all, but sometimes the one next inner margin accompanied by an eighth; a discal row of conspicuous spots, also sinuous, usually incomplete by the absence of one spot from upper median interspace,—this spot when present, minute; and a narrow spot in cell, often wanting; secondaries have a transverse row of spots on middle of wing, which are regular, narrow, elongated, and equal; at anal angle a fulvous patch, which extends a little distance up the abdominal margin; fringes white, black at tips of nervules.

Under side more decidedly brown; the spots on primaries repeated; the sub-marginal enlarged, mostly lunate; the extra discal also enlarged; the discal nearly as above; two spots in cell, one near arc, one near base; a third below the origin of lower branch of median; shoulder ferruginous; secondaries have a sub-marginal series of yellow lunules; a broad yellow band across disk; a narrow yellow stripe near base, from costal edge to sub-median nervure; half-way between sub-marginal spots and discal band, a series of yellow points, tortuous, commencing on costal margin near the band, crossing the wing in a double curve, the last point being on sub-median interspace; these marks vary from points to conspicuous spots, and sometimes are nearly or quite obsolete; in middle of cell a yellow point; anal spot as above, ferruginous; the upper part of abdominal margin edged with yellow; a yellow patch on shoulder.

Body above blackish-brown, below gray-brown; legs ferruginous; palpi white in front, black above and at tip; antennæ fuscous, finely annulated with white; club black above, gray below, fulvous at tip.

Female.—Expands 2.1 inches. Similar to male; in the only specimen examined, the fulvous patch at inner angle of secondaries was absent; below cell of primaries two white points.

From several males and one female, taken at White Mountains, Arizona, in 1873, by Mr. Henshaw, of Lieut. Wheeler's Expedition.

I submitted one of these specimens to Mr. A. G. Butler for determination, and he informed me that two examples from Mexico were in the British Museum collection, and that they were regarded by him as a distinct species, allied to *Lacinia* and *Hippodrome*.

***Geirocheilus Tritonia*, n. sp.**

Male.—Expands 2.3 inches. Upper side velvety, blackish-brown, changing to brown on hind margin of primaries with an olivaceous tint at apex; costal edge of primaries near apex yellow-white; beyond disk a transverse row of four white points, set in middle of the upper discoidal and three next lower interspaces; the last point sometimes wanting on upper side; secondaries have a broad marginal band of dull ferruginous, even edged within, reaching the margin on that part of wing between sub-median nervure and the upper branch of median; beyond this last receding from the margin, but usually continued past the upper branch of sub-costal and gradually diminishing to a point, sometimes, however, terminating squarely at the lower

branch of same nervure; through this band runs an indistinct undulating brown line, parallel to and near the margin; beyond upper branch of median the space between this line and margin is brown, color of apex of primaries; fringes of primaries black at tips of nervules, yellow-white in the interspaces, of secondaries nearly all fuscous, there being but a few gray hairs in each interspace.

Under side smoky-brown; the white spots repeated, enlarged three-fold, each forming the pupil of a rounded black ocellus; secondaries have a broad extra-discal band, ferruginous and lilac, with scattered yellow scales, on the posterior half of wing, lilac on brown ground apically; on the anterior edge of the band, upon small ferruginous spaces free from lilac, is a row of straw-colored points and spots, commencing in a point on the lower sub-costal interspace and continuing to sub-median nervure, just before which are two points; the three spots on the three median interspaces crescent or V-shaped; in some cases these larger spots re-appear on upper side; posterior to the band, the sub-marginal area is brown, sharply lunated, each lunation forming internally a semi-circle, and through all runs a streak of ferruginous, more or less irrorated with yellow; sometimes the streak is limited to the three interspaces next abdominal margin.

Body blackish-brown; legs brown and gray; palpi gray in front, blackish above and at tip; antennæ brown, grayish next club, gray below; club yellowish.

From White Mountains, Arizona, and taken by Mr. Henshaw, in 1873. This species is near *Patrobas*, Hewitson.

EREBIA HAYDENII. Edw. U. S. Geo. Survey of Montana etc. 1872.

Male.—Expands 1.6 inch.

Upper side fuscous, immaculate; underside a shade paler, much irrorated with grey scales; primaries immaculate; secondaries have a complete series of black ocelli along the edge of hind margin, one in each interspace; each ocellus narrowly ringed with ochraceous, and having a minute white pupil.

Found at Yellowstone Lake.